

A NEW HEPATOTOXIC AGENT: GOJİ BERRY

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Abstract

Introduction: Goji berry has long been used as a healthy aliment for healthy vision, strengthening the immune system, protecting the liver, improving circulation, remedy for diabetes, enhancing sexual performance and general health. But there are not enough study on its constituents, pharmacology and safety.

Case Report: This case report describes a 24-year-old female patient was admitted to emergency service due to complaints of nausea, vomiting and abdominal pain. Ictherus at sclera and sensitivity on the right upper quadrant of abdomen were found on the physical examination. Blood tests revealed high liver function tests. The causes of jaundice and impaired liver function were all excluded and toxic hepatitis due to goji berry consumption was considered in patient.

Conclusion: Goji berry is a traditional nutrient that is increasingly used for its various effects. To date, there are some articles declared allergic reactions as toxic effect. To our knowledge this case is the first publication that goji berries can be toxic to the liver. Although larger studies are required, it should be kept in mind that liver toxicity may occur during intensive use.

Keywords: Emergency Service, Goji Berry, Hepotoxicity.

Introduction

The consumption of goji berries and products in Europe and North America has been much popular. For many years, goji berries have been used as auxiliary nutrients for strengthening the immune system in Chinese Medicine, supporting circulation, protecting the liver and increasing sexual power. In addition, it is used for treatment of diabetes, anemia, tinnitus and lung diseases.(1)

There is not enough research on the biochemistry, pharmacology and physiology of goji berry, its reliability and use in spite of its growing popularity in the new food sector and its importance in traditional Chinese medicine. This case report describes hepatotoxicity following consumption of goji berries in a healthy women.

Case Report

A 24-year-old female patient was admitted to the emergency department due to complaints of nausea, vomiting, abdominal pain. The patient's resume and family history did not reveal any characteristics. No pathologic findings were found except icterus at sclera and sensitivity on the right upper quadrant of abdomen on the physical examination of the patient. The patient stated that he used goji berry for 1 week to weaken. She also stated that he did not use any medicines or herbal products and no changes on her diet. On the patient's laboratory review, total bilirubine (T. Bil.) 6.1 mg/dL, direct bilirubine (D. Bil.) 4,49 mg/dl, aspartate aminotransferase (AST) 516 U/L, alanine aminotransferase (ALT) 840 U/L, gamma-glutamyl transferase (GGT) 200 U/L, lactate dehydrogenase (LDH) 285 U/L, prothrombine time (PT) 35,3 sec, activated

partial thromboplastin time (aPTT) 103,7 sec, INR 2,72 were detected (Table). Full blood count, CRP and other biochemical test values were within normal limits. abdominal ultrasound and computed tomography were performed to exclude acute surgical pathologies and to reveal etiology. Toxic hepatitis was considered in the patient due to no acute surgical pathology on tomography and ultrasound. Supportive treatment including hepatamin, n-acetyl-cysteine was started by stopping oral intake of patient. The patient was referred to the gastroenterology department and transferred to the gastroenterology service with a pre-diagnosis of toxic hepatitis. Viral hepatitis and autoimmune hepatitis were ruled out on detection of HBsAg, Anti HCV, Anti HBc IgM, Anti HAV IgM, EBV VCA IgM, Anti CMV IgM and autoimmune markers (AMA, ANA, ASMA) negative in the examinations performed at the service.

TABLE 1. Table. Changes in laboratory tests of patient

	Admission	Discharge
AST (U/L)	516	20
ALT (U/L)	840	18
GGT (U/L)	200	41
LDH (U/L)	285	171
T. Bil. (mg/dl)	6,1	0,3
D. Bil. (mg/dl)	4,4	0,13
PT (sec)	35,3	13,2
aPTT (sec)	103,7	26,7
INR	2,7	1,04

The oral intake of the patient was reopened in the gastroenterology service and the supportive therapy was continued for about 1 week. After 1 week follow up, the liver function test values returned to normal limits (Table 1). The patient refused the recommended liver biopsy and was discharged on his own request. She was advised to come to gastroenterology polyclinic to control 1 week later. Unfortunately she didn't come to polyclinic control.

Patient consent form couldn't be taken though this case report was written after the patient was discharged from the hospital. The case report has written in an anonymous characteristic, thus secret and detailed data about the patient has removed. Editor and reviewers can know and see these detailed data. These data are backed up by editor and by reviewers.

Discussion

Goji berry, the dried ripe berries of lycium barbarum and lycium chinense, is a product that has been consumed as medicinal and nutrients in China and Asia for at least 2000 years. Goji berry has been used widely for its weight loss effects (2). Goji berry is an ellipsoid shaped, 10-20 mm orange-red nutrient. Goji Berry fruit and products have increased in Europe and United States in recent years. Even so, the US Food and Drug Administration (FDA) does not include goji berry on the Generally Safe (GRAS) list.

The physiological properties of goji berry have been investigated intensively in recent years. It has been seen that lycium barbarum extracts have anticancer, antiaging and immune system enhancing effects. Because of its antioxidant properties, this can have positive booster effects. (1,3).

There are not enough publications in the literature on the toxic effects of goji berry. In the literature there are a few case reports of an allergic reaction that develops as much as anaphylaxis development, especially in people with peach allergies (4-6). In addition, since drug interactions are not known precisely, it is recommended not to be used with drugs with narrow therapeutic index (7). Some case reports have reported that goji berries cause increased INR and bleeding in patients using warfarin (8,9). Although there was no use of warfarin or similar anticoagulant medication in our case, she has increased INR level but there was no evidence of bleeding. Apart from these effects, Franco M. et al. reported an autoimmune hepatitis triggered by goji intake (10). We studied autoimmune hepatitis markers in our case, but autoimmune markers were negative in our patient.

According to our knowledge, there is only one letter describing hepatotoxicity due to the use of goji berry (11). Our case was similar to that case except the patient is older than our patient and her PT and INR values were in normal range. It is even more surprising that hepatotoxicity has been observed. Because it has been reported that hepatoprotective effect in many studies on goji berry (1,12,13). Although findings in our case contradict these studies, other possibilities to raise the liver function tests in the patient were questioned but no factors other than goji use were detected. In addition, the recovery of the symptoms after the patient's withdrawal of goji berry also supports the hypothesis that goji berry is the cause of hepatotoxicity.

The fact that our patient was not compliant with the hospitalization, wanted to discharge from hospital voluntarily before the treatment was fully completed, and did not allow advanced etiologic investigations such as liver biopsy led to the limitation of our case report.

Conclusion

As a result, it is known that goji berries have various physiological effects such as anti-aging, anti-cancer, immunostimulatory, cytoprotective and etc. Due to these influences, the accessibility and use of the goji berry, which has a growing popularity all over the world, is increasing day by day. However, sufficient data are not available in the literature in terms of toxic effects. This case report shared a case showing the prolonged hepatotoxic effect of goji berry. We are confident that further research will provide more informative information on the possible toxic effects of this commonly used herbal product.

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